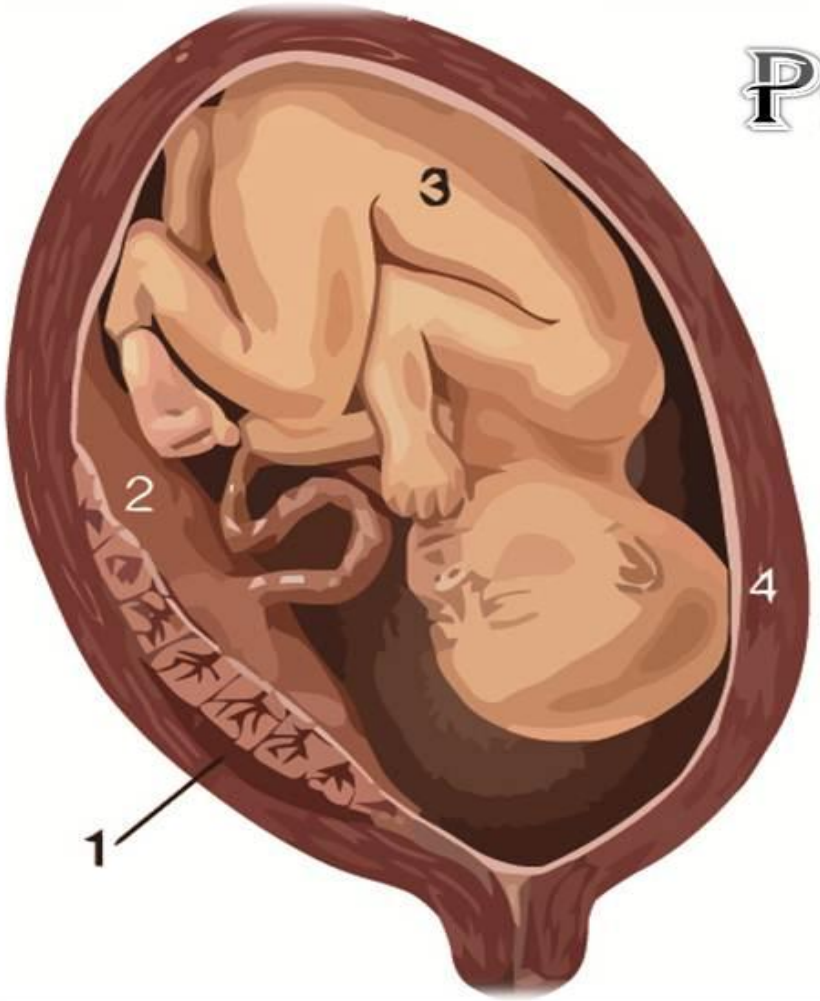
One Vision....One mission

ALL TEAM & أسرة صلاح الدين

PRESENT



Obstetrics Revision

PREPARED BY :
MAHMOUD BEHAIRY

Normal labor

Anatomy &

- **Pelvic anatomy :**
  - **Pelvic inlet :**
    - **Obstetric conjugate** : 10.5 cm from promontory to the most bulginig point of the back of symphsis pubis
    - **True conjugate** :11cm from promontory to upper border of SP
    - **Diagonal conjugate** : 12.5cm from promontory to the lower border of SP
    - **Obstetrical TD** :11-12cm bisect the true conjugate and shorter than anatomincal
    - **Rt & lt oblique diameters** : 12 cm extend from sacroiliac joinit to opposite iliopectineal eminence RT or LT according to joint
    - **Sacrocotyloid** : 9-9.5 cm from promonentry to iliopectineal eminence
  - **Pelvic cavity** :contain plane of grateast pelvic dimension 12.5 x 12.5 (from center of back of SP to the junction between 2nd & 3rd sacral pieces) – diameter of internal rotation
  - **Pelvic outlet** :
    - **Bituberous D** : 11 cm between 2 ischial tuberosities
    - **Bispinous** : 10.5 between 2 ischial spines
    - **Obstetric AP D** : 13cm from lower tip of SP to tip of sacrum
    - **Post sagittal D** : 7-10 cm from tip of sacrum to center of bituberous
    - **Ant sagittal D**:6-7cm from center of bituberous to lower border of SP .
  - **Impotance of ischial spines :**
  - **Anatomical :**
    - Level of attachment of levator ani
    - External os & vaginal vault at this level
    - Level of plane of least pelvic dimensions
    - Obstetric axis changes its direction here
  - **Obstetrical :**
    - Level of engagement
    - Forceps shouldn't be applied when head is above that level
    - Anathestic agent for pudendal nerve is injected at this level
    - Level below which uterus is considered 1st degree prolapse
- **Fetal skull :**
  - **Base** : from the chin to formen magnum
  - **Face :** from chin to root of nose
  - **Vault** : 3 regions brow (from root of nose to ant fontanelle) – vertex (from brgma to to post fontanelle) – occiput (from post fontanelle to foramen magnum)
  - **Diameters** :
    - **Longitudinal diameters** :
      - *Suboccipito-brgmatic* : 9.5 from below occipital protuberance to center of ant fontanelle (engaging D in full flexion)
      - *Suboccipito frontal* ; 10 AS ABOVE BUT TO ANT END
      - *Occipito frontal* : 11.5 from occipital protuberane to root of nose (engaging D when head is deflexed)
      - *Submento-bregmatic* : 9.5 from junction of chin & neck to center of bregma (engaging in full extention) face
      - *Submento-vertical* : from junction of chin & neck to vertical point (midway between ant & post fontanelles)
    - **Transeverse diameters :**
      - *Biparietal* : 9.5 between 2 paritteal eminences (widest transverse D)
      - *Bitemporal* : 8 between 2 ant ends of temporal sutures

Course of labor

➢ **Forces of labor :**

1. **Uterine contractions & retractions** : characterized by :
   - Polarity & fundal dominance
   - Painful
   - The contraction followed by retraction
   - Involuntary & rhythmic
   - Coordinated
   - Increase in frequency , strength & duration
2. **Auxiliary forces :** maternal bearing down lead to increased IAP

➢ **Diagnosis of labor :**

1. **True labor pains : which** are colicky – in abdomen & lower back – regular -increasing in frequency ,strength & duration –not relieved by sedatives – associated with cervical dilatation & bulging of bag of fore water .
2. **The show :** expulsion of mucus plug streaked with blood
3. **Dilatation of cervix .**
4. **Bulging bag of fore water :** tense during contractions (sure sign of labor)

➢ **Theories of onset of labor :**

1. **Prostaglandin theory : as PGL** stimulate contrations & antiPGL abolishes it .
2. **Fetal cortisol theory : as** anencephaly is associated with postterm
3. **Progesterone withdrwal theory :** as before labor progesterone withdrawal occurs .
4. **Estrogen –oxytocin theory :** estrogen increases oxytocin receptors in uterus
5. **Uterine distention theory :** explain preterm in twin & polyhydra
6. **Placental ischemia theory**
7. **Stretch of lower uterine segment**

➢ **Stages of labor :**

1. **Proderoma** of labor : false labor pains – increased vaginal discharge – pelvic pressure symptoms - lightening (relief of upper abdominal pressure symptoms) – shelfing (fundus descend
2. **Stage 1 (cervical dilatation)**
3. **Stage 2 : expulsion of fetus**
4. **Stage 3 : expulsion of placenta & membranes**

➢ **Intial management of labor :**

1. **History :**
   - **Onset** of labor pains & quality
   - Presence of show or escape of liquor and its color
   - Fetal movements
2. **Examination :**
   - **General : vitals –** height & weight – degree of dehydration
   - **Abdominal :** uterine contractions – lie &presentation &position – engagement – FH S
   - **Vaginal : exclude con**tracted pelvis – dilatation & effacement – presenting part – ROM – cord prolapse detect

➢ **Normal labor :Eutocia** spontaneous expulsion of a single – living fulltrem fetus in a vertex cephalic presentation through natural birth canal after spontaneous onset of true labor pains without assistance nor complications to mother or fetus

	1st stage	2nd stage	3rd stage
Starts	Onset o true labor pains	Full dilatation of cervix 10 cm	Complete delivery of fetus
Ends	Full dilatation of cervix 10 cm	Complete expulsion of fetus	Expulsion of placenta & membranes
Duration	10-18 hr in primigravida & 6-10 in multiparae	1-2 hr in primi & ½ hr in multiparae	10-30 min in both primi & multi-para
Mechanism	• **In primi :** effacement (shortening & incorporation of cervix into lower segment) occurs first followed by dilatation • **In multi** : effacement &dilatation occur simultaneously	1. **Delivery of head** : by (descent – engagement – increased flexion-internal rotation – extention-restitution – external rotation . 2. **Delivery of shoulders :** ant shoulder hinges below SP & post shoulder delivered by lateral flexion of the spine then ant shoulder follows .	• **Schultze mechanism :** 80% separation start in centre – deliverd as inverted umbrella – less blood loss – less retained placenta • **Duncan mechanism :** 20 % separation stats at lower edges – delivered sideways – more blood loss & retained placenta .
Management	**1-Preparation :** Antisepsis : vulva shaved & clean Evacuation of bladder & rectum : to prevent reflex uterine inertia by catheter & enema respectively **2-Observation of mother :** Vital signs . Uterine contractions for frequency-strenght – duration by palm or TCG Cervical dilatation Descent of fetus Rupture of membranes 2. **Observation of fetus** : observation of FHS to detect fetal distress either intermittent by sonicaid or continuous by TCG 3. **Nutrition** : oral sugary fluids allowed in latent phase but avoided in active phase – IV fluids if prolonged . 4. **Pain relief : pethidine** 50mg IM but stopped 2 hr before 2nd stage or epidural analgesia . 5. **Instructions** : If membranes ruptured :rest in bed in lateral position . If intact walking is allowed between contractions Straining is avoided Partogram : graphic recording of labor for cervical dilatation – contractions –descent of head-rupture of membranes & medications – vital signs – FHS	**Identified by** : full cervical dilatation –desire to evacuate rectum –reflex desire to bear down accompanied by grunt – rupture of membranes . **1-Preparation :** Patient taken to delivery room Put in lithotomy position Sterile patient & put sterile towels on her Patient is instructed to bear down during contractions only **2-Delivery of head & prevention of** perineal tear through : a. Perineal support by sterile dressing when head appears at vulva to prevent extenstion before crowning (passage of biparietal throygh vulval ring) before which vulval distension will be with occipito-frontal 11.5 but after will be with suboccipito-frontal 10cm b. Ritgen maneuver : controlled extension of head slowly in between contrations without bearing down . c. Episiotomy : when head maximally distend vulva . 3-**After delivery of head :** d. Clearance of air passages e. Coils of umbilical cord are slipped if one or cut if several f. Delivery of shoulders : g. Handling of fetus from ankles but avoided in preterm & asphyxia h. Umbilical cord clamped & cu t i. Milking of cord except in preterm & Rh incompitability	1. **Conservative method :** Exclusion of bleeding & uterine atony : by putting ulner border of left hand on fundus Waiting for signs of separation : body of uterus become smaller & harder – suprapubic bulge – elongation of cord without receding –gush of blood Uterine massage : allow contractio Placental expulsion : by asking patient to bear down or by fundal pressure Uterine stimulants : ergometrine 0.25mg IM or oxytocin 5U IV drip 2. **Active method :** Uterine stimulants : ergometrine 0.25mg IV to induce strong contractions Brandt-andrews method : left hand is pushing the uterus up while the other hand pull the cord during uterine contractions but may cause (rupture of cord – acute inversion of uterus) 3. **After placental separation :** Placenta rolled by both hands Inspected for missing parts Repair perineal tears & wash vulva 4. **4th stage :** 1st hour after delivery need carful observation & uterine massage every 15 min to prevent PPH 5. **New born management:** Warmth Care of respiration (suction – stimulation) Care of umbilical cord stump Care of eyes by antibiotics drops Record weight Detect congenital anomalies Vitamin K administration

ليس الأمر أني عبقري , كل ماهنالك أني أجاهد مع المشاكل لفترة أطول (ألبرت أينشتين)

Malpresentations

	Occipito-posterior position	Face presentation	Brow presentation	Breech presentation	Shoulder presentation	Cord presentation
Definition	Vertex presentation in which fetal back is directed posteriorly (malposition)	Longitudinal lie , cephalic presentation, in which head is fully extended & face is the presenting part	Longitudinal lie , cephalic presentation, in which head is midway between ext & flex	Longitudinal lie in which the buttocks with or without lower limb forms the presenting part	Transverse lie in which long axis of fetus cross that of mother & shoulder presenting	cord lie below presenting part with intact membranes
Incidence	25 %early in labor	1/500 deliveries	1/2000	At full term : 3-4 % but more frequent in preterm	1/200	1/300
Types	ROP & LOP but ROP is more common	Rt & LT mento anterior / rt & LT mento posterior	Transient (conversion of vertex to face) permenant	Complete breech – frank breech – footling (single & double) – kneeling [LSA - RSA – LSP – RSP]	Rt dorso ant / LDA / RDP/ LDP (anterior 60 %)	
Etiology	1. **Passages :** Anthropoid ,android & high assimi-lation pelvis due to narrow fore pelvis – maternal kyphosis (IMP) 2. Powers : weak contractions(pendulous) 3. Passengers : anterior insertion of placenta – twins	➢ **Primary face** : excessive tone of extensors – tumor of neck/ anencephaly ➢ **Secondary face** : contracted pelvis at inlet (primi) / pendulous abdomen / placenta previa	Same as face	1. **Prematurity** : the commonest cause (larger head –excessive liquor) 2. **Failure of spontaneous cephalic version** : breech with extended leg – multifetal – IUFD – oligo or poly – uterine anomalies – uterine fibroids 3. **Hydrocephalus** 4- **placenta previa**	**1- Lax abdominal wall** 2- **Prematurity** 3- Hydramonis 4- Twins 5- Uterine anomalies 6- Extremely contracted inlet	**1. Long cord** 80 cm or more **2. Malpresentation** : non fitting resenting part **3. High non engaged present**-ing part (contracted inlet – prematurity …etc)
Mechanism of labor	➢ **Correction of deflexion** : complete flexion occurs → occiput reaches first → occiput rotates ant 3/8 (long ant rotation) → head delivered by extension as normal ➢ **Direct OP** : (face to pubis) : marked defelxion →sinciput reach 1st →occiput rotates post 1/8 of circle → head delivered in flexion →perineal tears ➢ **Persistent OP** : moderate deflexion → both reach together → no rotation occur → labor is obstructed ➢ **Deep transverse arrest of occiput** : mild deflexion →occiput reach 1st →rotate only 1/8 ant →obstucted labor	7- **Mento anterior** : engagment by submento bregmatic 9.5 → increased extension → ant rotation of chin 1/8 → delivery of head by flexion but labor is prolonged(why 8- **Mento posterior** : j. Long anterior rotation of head 3/8 anterioirly →delivered in flexion k. Failure of long anterior rotation : → transverse arrest of base or persistent MP →obstructed labor l. Posterior rotstion → direct mento posterior →obstructed labor	No mechanism of labor	**Sacro anterior :** 1. Buttocks : bitrochanteric 10 cm enter one oblique →ant buttock reach 1st → rotate ant 1/8 →hinge below SP →post buttock delivered by lateral flexion of spine 2. Shoulder s : bis-acromial diameter 12 cm enter the oblique →ant shoulder reach 1st →rotate … etc as buttocks 3. Head : longitudinal diameter of head enter opposite oblique →occiput rotate ant 1/8 →head delivered in flexion **Sacro posterior :** ant buttocks & shoulders rotate ant 1/8 but occiput rotate ant 3/8th of circle	No mechanism of delivery for transverse except if it was temporary and turned cephalic or breech near term	
Examination	➢ **Inspection** : abdomen flat below umb – subumblical transverse groove – fetal movement near midlle line ➢ **Palpation** : fundal (breech) – umbel-ical(back away from middle line) – 1st pelvic (non engaged head) ➢ Auscultation: FHS at flanks below umb	➢ **Abdominal** : palpation by 1st pelvic grip : un-engaged head ➢ **Vaginal :** (during labor) : distinctive facial landmarks (mentum –alveolar matgin – nose – malar bones – supra orbital ridges)	➢ **Abdominal :** poorly diagnostic ➢ **Vaginal** : non-engaged high presenting part – distinctive landmarks (frontal bone – supra orbital margin – root of nose – ant font)	**Abdominal :** inspection (bulge at hypochondrium) – palpation (fundal level corresponds / fundal grip →head felt / umbilical →position of back / 1st pelvic →buttocks felt) – auscultation (FHS heard above umbilicus except if engaged) **Vaginal :** landmarks for breech (3 bony prominences : 2 ischial tuberosities & tip of sacrum – feet beside) + other values of PV	**Abdominal** : uterus enlarged transversely / fundus low / head felt at one iliac fossa /anteriorly hard plane of back or irregularity of limbs **Vaginal :** ribs felt above pelvic inlet – hand or arm (should be distinguished from leg) usually prolapse + UC may be felt **US :** can confirm diagnosis + detection of cause	❖ **Cord presentation :** pulsati-ons can be felt / fetal brady-cardia occur if cord compress (variable decelerations) ❖ **Cord prolapse :** a loop is felt in vagina either pulsating or non (alive or dead)
VS	Gestestional age – fetal weight – placental localization – exclude congenital anomiles – evaluation of fetal well being + **confirm position & deflexion**	**Reveal maximal head extention** + Gestestional age – fetal weight – placental localization – exclude congenital anomiles – evaluation of fetal well being	Detect incomplete head extention + other signs	Confirm diagnosi with very high accuracy Detect fetal **head hyper extention** Exclusion of congenital anomalies & prematurity & fetal age – weight – placental localization		
Complications	3- **Maternal** : PROM → chorioamnionitis / lacerations →purepural sepsis / obstructed labor→CS / inertia→atonic PPH 4- **Fetal** : asphyxia – fetal injuries	Same complications		1- **Maternal** : PROM with prolonged labor →purepural sepsis / birth canal injuries / PPH either atonic from exhaustion or traumatic from lacerations / 2- **Fetal** : intracranial HGE / fracture of cervical spine / asphyxia / visceral injuries / fracture femur / hip dislocation	**Neglected shoulder** : when ROM occur and arm prolapsed through canal . if intervention delayed fetus could be lost or severely distressed or rupture uterus (immediate CS)	**Still birth** & neonatal death occurs in 20%
Management	1- **Exclude** contracted pelvis & CPD 2- **Watceful expectancy** for 1 hour hoping for long anterior rotation which will lead to normal labor in 90% 3- **Face** to **pubis** : 6% delivered by aid of forceps with generous apisiotomy 4- **Persistent** OP & deep transverse arrest CS delivery	1. **Exclude** any congenital anomiles – contracted pelvis – other CS causes 2. **MA** : vaginal delivery anticipated either by generous episiotomy or low forceps 3. **MP** : wait 1 hr for LAR (2/3 cases) → as MA / other 1/3 → CS	Give appropriate time for head to convert into face or vertex if not CS is the only option as capping diameter is mentovertical 13.5 cm longer than any inlet diameter	1) **External cephalic version** : convert breech to cephalic to avoid complications & exclude CPD / done between 36-37 Week / complications (accidental Hge – ROM – cord accident) / contra : any other cause for CS as PP , multifetal , preeclampsia – oligo or polyhydraminos 2) **Elective CS** : fetal weight >3.5 kg / < 2.5 kg / footling presentation / head hyperextension / any degree of contracted pelvis / any other CS indication . 3) **Trial of vaginal** : weight 2.5-3.5kg / age > 36 W / complete or frank breech / flexed fetal head / no pelvic contraction / no other CS indication – done by assisted breech or breech extraction a. **Assisted breech** : i. Delivery of buttocks, legs, trunk : feet & legs hooked out followed by buttocks without traction + pull loop of cord to avoid cord compression + keep back always anterior and covered by a worm towel ii. Delivery of shoulders : when scapula appears under SP sweep arm in front of chest by finger at elbow then rotate back anteriorly to ensure ant rotation of occiput // lovset's maneuver to deliver extended arm by rotation of trunk 180 iii. Delivery of after coming head : Burns Marshall's method (infant left hanging till occiput appears under SP then held from feet toward mother's abdomen) // Jaw flexion-shoulder traction is better // Kristtler maneuver (gentle fundal pressure during contractions helping other methods) // delivery by pipers forceps which promote head flexion & prevent sudden decompression // prague maneuver (posterior rotation of head then flexion of body to mother) b. **Breech extraction** : rare in delivery of 2nd twin – maternal or fetal distress occur – prolapsed pulsating cord // done under general anes-thesia with steady traction on legs before its descent to perineum	**During pregnancy** : ECV **Early in labor** : if membranes intact ECV tried then ROM done to maintain longitudinal lie – if failed CS is done **Late I labor** : CS is the safest option . ONLY 2nd twin with intact membranes fully dilated cervix : ROM →IPV → BE	**1- prolapsed non pulsating** : make sure fetus is dead → left to continue vaginally . **4) Prolapsed pulsating : immediate CS** . time interval bfore it (lower table of patient – sleep on left lateral position – give O2)

أي التزام دون الإلتزام الوعي بكل ما هو من أشياء ليس سوي التزام غير الواعي بالشئ المهم (ستيفن كوفي)

Abortion

	Threatened abortion	Inevitable abortion	Missed abortion		Septic abortion	Recurrent abortion	Isthmic incompetence
Definition	Mild vaginal bleeding before 20 Weeks without cervical dilatation or effacement	Excessive bleeding prior 20 weeks accompined by uterine contractions & cervical dilatation without expulsion	1st trimesteric	2nd trimestric	Any type of abortion complicated by infection	Occurrence of 3 or more successive spontaneous abortions	Inability of cervix to retain the conceptus past the first trimester
			Death with prolonged retention of of fetal & placental tissues in uterofor several weeks				
Symptoms	▪ **Minimal** bleeding ▪ **Mild** suprapubic pain & heaviness	▪ Bleeding is e**xcessiv**e with clots ▪ Suprapubic pain **sever** radiating to back like labor pains ▪ Hypovolemic s**hock** can occur	▪ Dark brown **mild** vaginal bleeding ▪ Minimal or **no pain**	**Mild** vaginal bleeding – **mild** abdominal like cramps – no progressive abdominal enlargement	Symptoms of abortion according to type / bleeding –**pain with fever** headache and offensive discharge	Etiology : ➢ Genetic & chromosomal anomalis ➢ Uterine anatomic anomalies ➢ Endocrine disorders ;LPD – DM ➢ Immunological disorders ➢ Infectious agents ➢ Toxic agents/parental comptabilit ➢ Chronic illness / thrombophilia	**Etiology :** ➢ **Trauma is the most common :** ○ Repeated D &C ○ Conization of cervix- amputati ○ Cervical lacerations ○ Forceps application ➢ **Anatomic defects :** ○ **Congenital :** septate bicornate ○ **Acquired :** myomata – polyp
Examination	Uterine size **correspond** to gestestional age Cervix is formed & **closed**	**Correspond** to duration or smaller Cervix is **dilated** and products of conception can be felt at cervical os	▪ **Smaller** for gestational age ▪ Cervix **closed**	Uterus is **smaller** than expected – no fetal movements or FHS	Signs of **infection** (fever – offensive discharge – tachycardia) suprapubic tenderness – septic **shock**		
US & investigations	▪ **Intact** pregnancy correlating with date ▪ Fetal **pulsations** if > 7w ▪ Mild choriodecidual **separation**	▪ Fetus is uaually **dead** ▪ Placenta partially or completely **separated** ▪ Internal os is **dilated**	▪ An-embryonic **sac** with no embryonic echos ▪ Dead **embryo** : <9w with no pulsations ▪ Dead **fetus** : >9W with no movements	Dead fetus with absent pulsations – cause could be detected (congenital anomaly or placental cause)	Culture & sensitivity / blood culture – blood picture / kidney functions / X-ray abdomen for foreign body or air under diaphragm	➢ **Uteriene** : US/HSG/hysteroscopy / endometrial biopsy for LPD ➢ **Cervical** : cervical culture / evaluation for incompetence ➢ **Immunological** & serological : karyotyping – HLA –Ab for LAC	➢ **In between pregnancy :**easy passage of hegar no 8 / HSG (internal os dilatation 6 mm – funneling of internal os) ➢ **During pregnancy :** shortened cervical canal – wide &funnel IO
Management	1**- Bed rest** : no heavy work – exercise or intercourse 7- **Hormonal** : natural progesterone / HCG 500 iU twice weekly 8- **Anti-D** immunoglobulin IM for RH –ve > 12 w	1- **Resuscitation** : antishock measures 2- **Surgical evacuation** : if < 12 w curettage is done under GA 3- **Medical evacuation** : beyond 12-14 week give oxytocin iv infusion – ergometrine IV,IM,oral 4- **Abdominal hysterotomy** : if induction failed – bleeding sever 5- **Antibiotics** : prophylaxis 6- **Anti**-D : for RH –ve >12 w	▪ Expectant management : expulsion in 2 weeks ▪ Medical evacuation : by oral mefipristone – oral or vag PGL ▪ Suction evacuation : < 7 W in very early missed or blighted O ▪ Surgical evacuation : <12 w diatation – evacuation and curettage then antibiotics	Expectant : spontaneous expulsion occurs in 2-4 W Active : if bleeding – infection – hypofibrinogenemia – anxious patient either medical inducation of abortion or abdominal hysterotomy if failed induction or sever bleeding	▪ Isolation of patient in fowler position . ▪ Observation of vital signs ▪ Shock manage & CVP monitor ▪ Antibiotics : penicillin + gentamycin + metronidazole ▪ Analgesics & aantipyritics ▪ Medical evacuation : IV infusion oxytocin and IM ergometrin ▪ Surgical evacuation of uterus after starting antibiotics wit hthe risk for perforation ▪ Hysterotomy in Clostridium welchi	1- **Inbetween pregnancies** : hypoplasia (cyclic E & P) – LPD (progesterone support) – APS (low dose aspirin) - infection (antibiotics) – control for DM – hypothyrodism – myomectomy for fibroids – correction of anomalies 2- **During pregnancy** : progesterone support – low dose aspirin – cerclage for incompetence	➢ **Medical :** rest - progesterone support but no efficient alone ➢ **Cervical cerclage :** between 12-14 week either : ○ *Vaginal cerclage* **:** Macdonald (4 bites as hogh as possible) – shirodkar (silk suture at internal os under cervical mucosa) removed >37 w ○ *Abdominal cerclage* **:** in case of high amputation cervix at 10th w level of isthmus - deliverd by CS >37 w

Preeclamspia

➢ ***Definition*** **:** syndrome of hypertension & proteinuria (> 300 mg/24hr or persistent 30 mg/dl) with or without edema occurring mostly in 2nd half of pregnancy

➢ **Incidence :** 3-7 % of all pregnancies especially in primigravida

➢ **Risk factors :** primigravida / suprabence of villia (multifetal & vesicular) / preexisting vascular disease (DM & chronic HTN) / gentic predisposition / family history / abnormal placentation as PP

➢ **Etiology :** abnormal placentation → release of aunknown substances → vascular endothelial damage & generalized vasospasm → multisystem hypoperfusion state

➢ **Pathophysiology :**
- ○ **CVS :** increased responsiveness to VC agents →↑ peripheral resistance & HTN / decreased blood volume & fall ofplasma proteins & ↑ platelets thrombosis
- ○ **Renal system :** oliguria / proteinuria / hyperurecemia due to glomerular endotheiosis & decreased renal perfusion
- ○ **Placenta :** failure of trophoplastic invasion of spiral arteries → retain their muscular walls & respond to VC →acute atherosis of sporal arteries (narrowing of lumen) →placental ischemia →placental infarcts → placental insufficiency
- ○ **Liver :** periportal & subcapsulsr hemorrhage & necrosis / rupture in sever cases
- ○ **CNS :** cerebral edema / peticial hemorrhage

➢ **Symptoms :**

1. Asymptomatic cases: PE is asymptomatic in the early and mild cases.

2. Symptomatic cases:
- ○ Persistent headache.
- ○ Epigastric and right upper abdominal pain.
- ○ Persistent vomiting.
- ○ Visual disturbances: blurring of vision, scotoma, diplopia, flashes of light, blindness.
- ○ Oedema (lower limb, abdominal, or generalized oedema).

➢ **Signs :**
- ○ **Hypertension : 140/90** or more in 2 measurement
- ○ **Proteinuria :**eithrt > 300 mg/24hr or urine strips > +1 in at least 2 random urine samples
- ○ **Edema :** not a feature in diagnosis of preeclampsia and could be occult edema (abnormal rate of weight gain) / or clinical edema (non dependant edema)

➢ **Investigations :**
- ○ Complete urine analysis : dipstick in arandom urine or 24 hr urine collection
- ○ Serum uric acid : hyperurecemia preceeds proteinuria
- ○ Kidney function tests & liver function tests for HELLP$
- ○ CBC for anemia & hemoconcentration / platelatelt count
- ○ Coagulation profile : PT & PTT & fibrinogen & FDP
- ○ Fundus odculi
- ○ Evaluation of fetal wellbeing : DFMC & NST & US & Doppler

➢ ***Complications*** **:**

A. Maternal Complications of Preeclampsia:
- *Eclampsia:* 1-2 %
- *Acute renal failure acute tubular necrosis or cortical necrosis*
- *Abruption of placenta:* in sever caes
- *HELLP syndrome:* 2-4 %
- *Cardiac failure and acute pulmonary oedema: .*
- *Intracranial hemorrhage:.*
- *Hepatic rupture:from subscapular hemorrhage*
- *Disseminated Intravascular Coagulopathy (DIC).*
- *Retinal detachment and cortical blindness.*

B. Fetal Complications of Preeclampsia:
- Intrauterine growth restriction (IUGR)
- Intrauterine fetal death (IUFD)
- Prematurity (iatrogenic)

➢ ***Criteria of severity :***
- ○ **Symptoms :** persistent headache – epigastric pain – persistent vomiting / oliguria
- ○ **Signs :** Bp 160/110 or more
- ○ **Investigations :** proteinuria > 5 gm/24hr or +2 dipstick / elevated liver enzymes / thrombocytopenia
- ○ **Presence of any of the Complications**

➢

➢ ***Prevention :***
- ○ **low dose aspirin :** high risk to develop PE – history of sever PE or IUGR in oder to inhibit platelet aggregation & inhibit release of thromboxane A2
- ○ **Antioxidants** (vitamin C & E) : inhibit endothelial activation

➢ ***Treatment*** **:**
- The GOAL of treatment is the **prevention of the complication**s of PE particularly Eclampsia.
- The ONLY definitive treatment of PE is **termination of pregnancy** .
- The TIMING of termination depends both on **Gestational age** and the severity of PE:
  - ○ **. Mild PE**
    -Full term (37 weeks or more) delivery by induction of labour or CS.
    -Preterm (<37 weeks) expectant management until fetal lung maturity reassured by : Rest: / Diet: / antihypertensive Drugs / Close maternal follow up: / DFMC, NST, BPPS, and Doppler ultrasound for umbilical and cerebral vessels.
    - Mode of delivery: vaginal or CS according to conditions
  - ○ **B. Severe PE:**

Immediate delivery is the only treatment after urgent adequate control by: Hospitalization. / Antihypertensive drugs (Hydralazine: / Labetalol: / Nifedipine: / Prophylactic-anticonvulsants:

➢ Mode of delivery : induction or CS

احذر ضحك الشيطان منك في ست ساعات: ساعة الغضب، والمفاخرة، والمجادلة، وهجمة الزهد المفاجئة، والحماس وأنت تخطب في الجماهير، والبكاء وأنت تعظ الناس (مصطفي السباعي)

Bleeding in pregnancy & labor

	Placental abruption	Placenta praevia	Ectopic pregnancy	Vesicular mole	Post partum Hge
Definition	bleeding from genital tract after the 20th week of pregnancy due to premature separation of a normally situated placenta.	a placenta that is encroaching on the lower uterine segment	Implantation of fertilized ovum outside endometrial cavity	Pregnancy related trophoplastic proliferative abnormality	blood loss in excess of 500 c.c. after VD or 1000 after CS
Pathology	➢ **Generalized pathology:** degenerative arteriolitis of the decidual arterioles leading to ischemia, necrosis, oedema & haemorrhage in the affected tissue. ➢ **Placental pathology** : placental separation – retroplacental hematoma – infarcts of pre-eclampsia ➢ **Uterine pathology**: Intra-myometrial haemorrhage with tearing of muscle fibres,	3. **The lower uterine segment**: It is thin, vascular and friable thus more liable to laceration. 4. The placenta: Extends to the lower uterine segment, may reach or Higher incidence of placenta accreta 5. The umbilical cord: there is higher incidence of velamentous insertion and vasa praevia.	**1. Fallopian tube :** o Rupture toward lumen : hematosalpinx / tubal mole / tubal abortion / peritoneal hematoma o Rupture to outer surface : HGE 2. **Uterus** : enlarged up to 6-8 W	▪ Complete : mass of vasicles hang in clusters from thin pedicles // no fetus & amnion / theca lutein cyst 60%// karyotype ; 46xx entirely paternal ▪ Partial : same with fetus or amnion / triploid karyotype / rare theca lutein	o Primary PPH: Immediate bleeding, or within first 24 hours, after delivery. o Secondary PPH: Bleeding which is delayed > 24 hours, and till the end of puerperium
Etiology	➢ **Hypertensive states of pregnancy**: the commonest cause . ➢ **Trauma**: o External: accidental trauma to abdomen; external version. o Internal: sudden gush of amniotic fluid in hydramnios; traction of the baby on a short cord or torsion of uterus. ➢ **Abnormalities** of the placenta: as circumvallate placenta. ➢ **Vitamin deficiency**: especially folic acid deficiency	1. Advancing maternal age (>35 years). 2. Multiparity (para five or greater). 3. Prior caesarian delivery 4. Multifetal pregnancy. 5. Other causes of large placentae: as placenta membranaceae or multiple lobes (as bipartite)	o **Tubal wall** : congenital hypoplasia / previous tubal surgery o **Endothelial linig** : chronic salpinigitis / altered tubla motility o **Surroundings** : endometriosis cause adhesions / broad lig myoma o **Ovum :** transperitoneal migration	o Low dietary carotene o Vitamin A deficiency o Maternal age > 35 y o Previous mole	Primary causes : Placental site haemorrhage (atonic PPH) Traumatic laceration of the genital tract (traumatic PPH) Disseminated Intravascular Coagulation (DIC) / Secondary causes : Retained placental fragments / Separation of an infected slough from a laceration / Sloughing of an infected submucous fibroid polyp / Undiagnosed chronic uterine inversion
Symptoms	▪ **Revealed** vaginal bleeding: may be mild, moderate, or severe - correlates with the patient's general condition. ▪ Pain is **mild** or absent ▪ Bleeding is **not** usually **recurrent** due to terminnation ▪ Symptoms of **preeclampsia** ➢ **No** bleeding is usually present. ➢ Acute abdominal pain:**sudden sever** progressive ➢ Attack is usually **single** due to immediate termination ➢ Symptoms of **severe toxaemia**	Vaginal bleeding is characterized by being: 1. **Causeless** (unless it follows intercourse or vaginal examination). 2. **Painless** (unless it is associated with labour pains). 3. **Recurrent** (unless pregnancy is terminated with the first attack). Bleeding is always revealed and bright red in colour.	▪ Short period of amenorrhea ▪ Pain dull achimg or atabbing / colicky / bladder or rectal pain / shoulder pain ▪ Vaginal bleeding after pain ▪ Fainting & hypovolmia	1- Amenorrhea : short period 2- Vaginal bleeding : from separation 3- Prune juice discharge : water + bl 4- Hyper emsis : from ↑ HCG 5- Hyper thyrodism : effect of ↑ HCG 6- Trophoplastic Embolization : 7- Spontaneous explusion of vesicles 8- Pain is absent or dull aching	■ History: – Atonic PPH: over distended uterus, multifetal pregnancy, polyhydramnios, – Traumatic PPH: traumatic or instrumental delivery. ■ General Examination: *Check for signs of hypovolaemic shock* ■ Abdominal Examination: *To check the size and consistency of the uterus.* – Atonic PPH is usually revealed, palpation of the uterus reveals a soft consistency. The fundal level may be higher than expected if bleeding is partially concealed. – In traumatic PPH, the uterus is firm, and vaginal bleeding continues in spite of a well contracted uterus. ■ Vaginal Examination: *under anaesthesia* – To detcetd bleeding from laceration. – To explore digitally the uterine cavity for retained parts, and for exclusion of uterine rupture.
Signs	▪ **General Signs:** Anaemia and general condition proportionate to the amount of bleeding./ Signs of toxaemia may found ▪ **Abdominal Signs:** Abdomen and uterus are lax and not tender / fetal parts and movements are easily felt / Fundal level corresponds to the period / Presentation is usually normal ▪ **vaginal Examination :** exclusion of PP by US before doing it . as PP placental edge not felt – bleeding is bright red . ➢ **General signs :** Anaemia and general condition may not be proportionate / Hypovolaemic and or neurogenic shock /Signs of severe toxaemia ➢ **Abdomnial signs** : localized tenderness guarding or diffuse rigidity / uterus is tense and tender / fetal parts and movements / The fundal level is more than the period of amenorrhea/ ➢ **Vaginal signs** : same data as reaveled but bleeding is dark	o **General** : anemia & general condition proportionate to bleeding / no signs of toxemia / hypovolemic shock may be present o **Abdominal** : uterus lax and not tender / fetal parts easily felt / fundal level corresponds to age / malpresentations are common / FHS audible and regular except sever bleeding o **Vaginal** : contraindicated as it provoke bleeding done only when active manage ment is present in operating theatre with presence of anaesthesia blood transfusion / ability to perform CS to detect cervical dilataton – ROM – station- presenting part – pelvic adecuacy – placental edge is felt	6. General : signs of hypovolemia (pallor – rapid pulse – low BP) 7. Abdominal : tenderness 7 rebound tenderness and rigidity on one side / shifiting dullness may be present 8. Vaginal : signs of pregnancy / tenderness in post fornix / marked pain on moving cervix / uterus is enlarged soft with irregular tender adnexal mass o Chronic picture : lower abdominal discomfort & tenesmus / uterus pushed forward with tender cystic swelling o Acute picture : marked shock & collapse o Undisturbed : no specific signs or symptoms	o Excessive uteine size exceeding duration of pregnancy o Absence of fetal parts or FHS	
Investigations	3- **US** : diagnosed by exclusion of PP – retroplacental hematoma may be found 4- **Coagulation profile** : for coagulation defect 5- **CBC** : for anemia - weiner clot retraction test : for hypofibrinogenemia 6- **Urine analysis** : for proteinuria 7- **Kidney** & **liver** functions – retinal examination : for complications	1- **US** is the gold standard at middle of 2nd trimester we can confirm placental site & differentiate Hge from PP and that from PA 2- **CBC & urine analysis**	Pregnancy test in urine / serum Bhcg (no doubling) / US (empty endometrial cavity – decidual reaction / combined serum bHCG & US / laproscopy / CBC/urine / curettage	US : snow storm appearance – theca lutein cyst // serum HCG > 100000 mIU/ml	o **Prevention :** proper ANC / proper manage of 1st & 2nd stage of labor / 3rd stage o **Treatment :** ▪ Antishock measures ▪ Gentle uterine massage ▪ Ecbolics: (Oxytocin I.V. drip - (methergin); 0.2–0.5 mg, I.M. or I.V – Mesoprostol 800 – 1000 ug) ▪ If bleeding persists (if placenta retained →controlled cord traction or manual removal / If the placenta was already delivered → vaginal exploration → lacerations repaired / Bimanual compression of the uterus) ▪ If bleeding persists (Subtotal hysterectomy / Internal iliac artery ligation)
Management	o **Expectant management** : non toxemic / mild bleeding / < 37 w / not in labor / living baby without congenital anomalies – rest /reassurance / exclude PP / exclude local organic lesions by PV after 48 h o **Active management** : shocked / toxemic / sever bleeding / >37 W / in labor / congenital anomalies incompatible / recurrent bleeding --- Anti shock measures then either ▪ **CS** : Patient in shock / Severe vaginal bleeding / Moderate bleeding and cervix is closed. / Fetal distress, irrespective of the amount of bleeding./ Continuous bleeding during trial for vaginal delivery/ any other indication for CS --- after delivery stop bleeding by (IV oxytocin or ergomtrine then intramyometrial – if not ligation of uterine arteries then ant division of internal iliac lastly abdominal hysterectomy if not stop ▪ **Trial of vaginal** : good general condition / no malpresentation / normal fetal wellbeing / favorable condition for vaginal --- -- give IV oxytocin & artificial ROM to decrease distention / stimulate contractions	6- **Expectant manage** : < 37 w / mild bleeding / no labor pains / good general condition / living fetus (rest – diet – vitamins / ttt anemia / US –bleeding profile – exclude local organic lesions) 7- **Active manage** : bleeding > 37 / severe bleeding hypovolaemic shock / Labour pains / Recurrent and persistent / Fetus is dead or with major fetal anomalies : either by : ▪ **CS :** Total, partial or marginal / Severe bleeding or patient in shock / Moderate bleeding and cervix is closed / Continuous bleeding during trial for vaginal delivery./ Fetal distress due to severe bleeding during pregnancy ▪ **Trial of vaginal** : laterlais or marginalis anterior / normal fetal wellbeing / cephalic / favorable	4- Salpingectomy : disturbed in shocked patient 5- Conservative procedures : young desiring for fertility in undisturbed by : a. Linear salpingostomy : left open b. Linear salpingotomy : incision sutured c. Segmental resection and end to end anastomosis d. Milking of tube e. IM methotrexate : in young undisturbed – pregnancy sac < 3 cm / BHCG < 15000	1- Suction curettage : who desire fertility by (oxytocin infusion → anaesthesia →dilatation →suction →sharp curettage) 2- Hysterectomy : > 40 / no desire for further fertility performed with mole in situ / ovaries preserved / does not prevent hemostasis 3- Prophylactic chemotherapy : controversial as only 20 % only has risk for choriocarcinoma only those : HCG > 100000 / excessive uterine enlargement / theca lutein cyst > 6 cm	
Complications	o **Shock** : hypovolemic or neurogenic / **hypofibringenemia** & DIC / acute renal failure / PPH / Sheehan $ o **Fetal** : perinatal mortality / preterm labor / IUFD	hypovolaemic shock if severe and anaemia if mild and recurrent. / Abortion, IUGR and IUFD / Premature delivery / Malpresentations (dysfunctional labour). / Predisposition to presentation and prolapse of cord. / Postpartum haemorrhage / Puerperal sepsis (due to anaemia and laceration)	Shock – diffuse eintraperitoneal hemorrhage and death	Developemnet of choriocarcinoma in 20 % of cases so need follow up weekly for 3 weeks then monthly for 6 M then every 2 M for another 6 M / need a method for contraception oral or barrier	Maternal mortality / Haemorrhagic shock / Acute renal failure (2ry to hypovolaemic shock). / Puerperal sepsis / Sheehan's syndrome

Medical disorders with pregnancy

	RH incompitability	DM with pregnancy	Hyperemsis gravidarium	Cardiac disease	Anemia	UTI	Venous thromboembolis
Pathology	Immunologic disorder characterized by excessive haemolysis of fetal RBCs by antibodies that pass through the placenta from maternal blood.	Pregnancy is diabetogenic may unmask latent DM due to production of insulin antagonists so control of DM during pregnancy is difficult to control	➢ Biochemical changes : dehydration & metabolic acidosis ➢ Circulatory collapse : prerenal failure / starvation ketoacidosis ➢ Wernick's encephalopathy : delirium & ataxia & nystagmous	During pregnancy COP increases till a peak of 40 % above non pregnant by 20 w due to increased blood volume (stoke volume) and pulse rate	Anemia developing in pregnancy could be : physiological (from hydremia) / nutritional (iron or folate deficiency) / hemorrhagic / hemolytic (preeclampsia- immune) / aplastic : rare		**Pregnancy** increase risk for thrombosis due to : ↑ coagulants (cosgulation factors VII,VIII,IX,X – pltelatet activation – fibrinogen level) dcrase in anticoagulants (protein S & antithrombin III) – venous stasis due to pressure by gravid uterus
Incidence	1 % although rh –ve population are 15 %	Very common	1 % of pregnancies	0.5 -1 % of pregnancies	51 % of pregnant women anemic	1-2 % of pregnancies	**0.5-3 0f every 1000 pregnany**
Effect	**I. Congenital haemolytic anaemia:** fetal anaemia that develops 2 weeks after birth **II. Icterus gravis neonatorum:** The baby is delivered anaemic but never jaundiced at birth / Hepatosplenomegaly / Jaundice develops within 48 hours after birth / **kernicterus** develops when fetal bilirubin level exceeds 20 mg%. **III. Hydrops foetalis:** IUFD / generalized oedema, / Hepatosplenomegaly / The placenta is large and oedematous / the foetus shows the "Buddha" attitude	5- **maternal :** a. abortion – preeclamsia – hydramnios – preterm labor b. monilial vulvovaginitis/breast infection c. more liable for purepural sepsis 6- **fetal** : a. macrosomia : in uncontrolled states due to fetal hyperglycemia b. RDS & IUFD in last month from ketosis & anomalies & hypoglycemia c. Congenital anomalies as VSD & caudal regression $ d. Neonatal hypoglycemia e. Hypocalcemia& hyper bilirubinemia	➢ Begin as ordinary morning sickness then be repeated & apart from food intake & blood stained even & not confied to morning & very resistant to confential ttt ➢ Patient start to be dehydrated , lethargic , with manifestations of collapse , jaundice , hepato-renal failure , delirium and coma	○ **Heart rate & pulse** : increase HR / obvious capillary pulsations / water hammer pulse / occasional extrasystoles ○ **Apex beat variations** : elevation t o4th intercoatal space – soft systolic murmur / spilt of 1st HS / appearance of 3rd HS ○ **ECG : left** axis deviation / flattening of T & inverted ST in V2 & V4	1- **Mild** 10-11: no effect on pregnancy 2- **Moderate** 7-10 mg : poor work performance – increased fatigue 3- Sever < 7 : preterm labor / preeclampsia / sepsis 4- Fetal **effects** : decreased iron stores / SGA / icreased perinatal mortality	○ chronicity with recurrence ○ abortion & IUFD ○ fetal growth retardation with premature labor	Thrombophilia : ➢ **Acquired :** APS (combination of LAC with or without ACA with history of recurrent miscarriage or thrombosis) ➢ **Inherited :** protein C & S or aantithrombin III deficiency
Cases of high risk	RH –ve female develop anti-Rh antibodies if : blood transfusion from rh +ve / or married to rh +ve male & get pregnant with Rh + ve baby when fetomaternal hemorrhage occurs (delivery – ectopic – abortion – APH)	○ Old obese hypertensive . ○ History of macrosomia / congenital anomalies / sudden IUFD / abortion ? hydramnios	Neurosis Avitaminosis vitamin B1 & vitamin B6 deficency Endocrine theory : high levels of HCG as multifetal / vesicular	➢ Associated anemia ➢ UTI – ➢ Associated Cardiomyopathy ➢ Hypertensive disorders ➢ Thyrotoxicosis ➢ History of reactivation of RF	Cases with heart disease / previous sever anemia before pregnancy / not taking iron supplement during pregnancy which is 40-60 mg/day	1- Asymptomatic bacteruria of pregnancy 2- Urinary stasis (from atony of ureter from progesterone effect – compression with uterus more on right side / hypertrophy of lower end by estrogen)	➢ **Maternal age > 35** ➢ Pre-pregnancy weight > 80 kg ➢ Thrombophilia ➢ Previoud DVT ➢ Sever varicose veins ➢ Prolonged bed rest ➢ Multifetal pregnancy ➢ Sever preeclampsia ➢ CS delivery
Diagnosis	DIAGNOSIS DURING PREGNANCY: Check RH for mother during ANC if –ve →Determine the Rh group of the husband and if positive proceed for: Indirect coomb's test→If the titre >1/16 →amniocentesis to determine the amount of bilirubin in the amniotic fluid If titre less than 1/16 → repeat the test every 4 weeks / U.S: May show fetal hepatosplenomegaly, oedema, or Buddha attitude DIAGNOSIS AFTER LABOUR: Cord Blood for Rh grouping and if positive →Assess haemoglobin & serum bilirubin & perform Direct Coombs' test	➢ History that patient has DM or previous complications of its complaications ➢ Symptoms of DM : loss of weight / thirst / polyuria / pruritis ➢ Fasting & 2 hours post prandial lhyperglycemia ➢ Abnormal GTT (raised fasting & lagging curve)	NOT developing after 12 weeks Investigations directed toward assessment of general condition of patient as (electrolytes – acid base status - liver & kidney functions – fundus examination)		Symptoms of anemia : anorexia – malaise – headache – palpitation –dyspnea and HF In sever cases Signs : pallor / glosittis / stomatitis / edema & systolic murmur Investigations : CBC / serum ferritin / for cause (serum iron – Hb electropherisis / peripheral blood smear)	➢ Pain in loin / fever / rigors / vomiting ➢ Tenderness at renal angle ➢ Urine examination : acidic – decreased amount / contain albumin / pus cells & micro-oragnisms	Clinical : pain in calf muscles – redness / hotness / unilateral edema **Investigations :** ▪ colour Doppler US asses deep veins between knee & iliac veins – accurate , non invasive ▪ venography : asses veins both below and above knee but not favorable in pregnancy
Management	○ **prophylaxis against erythroblastosis foetalis** 1- Rh-negative females should never receive Rh-positive blood transfusion. 2- Anti-D immunoglobulins should be given to all Rh-negative non-sensitised females married to Rh-positive males in the following conditions: (After delivery of an Rh-positive baby 300 mcg / At time of any feto maternal transfusion 50-100 mcg / at 28 weeks of pregnancy) ○ **treatment during pregnancy** 3- Intrauterine blood transfusion : if the foetus is severely affected before 34 weeks gestation 4- Termination of pregnancy: if the foetus is severely affected after 34 weeks ○ **neonatal management** Exchange transfusion by Rh-negative group O blood	➢ **Control of DM** : diet control / more frequent ANC visits / repeated blood sugar assessment / glycosylated HG / insulin therapy for all cases no oral hypoglycemic to be used Termination : if evidenced placental insufficiency / > 37 W by ○ induction (if favorable conditions/ average Wt) or ○ CS (macrosomia or placental insufficiency) Care of infant : ○ more liable to RDS so need more care for respiration ○ 5 % glucose to prevent hypoglycemia ➢ P**uerperium** : reduction of dose of insulin to half to prevent hypoglycemia	Hospitalization & psychatirc support ○ **Fluid therapy** : normal saline with initial loading 1l/h ○ M**edication**s : antiemitics (dopamine – acetylcholine – histamine – serotonin) / thiamine 100 mg IV infusion / prednisolone 40 mg/day ○ **Feeding :** no oral feeding but total parentral nutrition with a catheter in subclavin vein 30 kcal/kg/day & fluids 30 ml/kg/day ○ **Termination of pregnancy** : if worsening of vital signs / sever dehydration / collapse / liver failure or renal failure	○ **Management in pregnancy** : more frequent ANC / bed rest – no excessive wt gain – dental care / digitalis if aleardy on it before pregnancy or class 2 / hospitalization at 24 -32 week & one week before delivery ○ **Management in labor** : proper pain relief / straining is prohibited to ↓ VR / delivery in semisetting position / adequate O2 / digitalis if HF / antibiotic cover to prevent SBE / shorten 2nd stage or perform CS ○ **Management in puerperium** : more liable for HF due to ↑ VR so monitor patient for 2 weeks / give proper method for contraception / prevent BF if in HF ○ Induction of abortion : if class 3or 4 / history of failure / rt to lt shunt	○ **During pregnancy** : ▪ Prevention : proper ANC / iron supplementation & vitamin C ▪ Tretmant : oral iron therapy in mid trimester or early 3rd / parentral iron for sever in late 3rd trimester / blood transfusion sever anemia beyond 36 W with blood loss ○ **During labor :** ▪ Ist stage : O2 & antibiiotics ▪ 2nd stage : shortened to avoid exhaustion ▪ 3rd stage : active management done except very sever anemia ○ **During puerperium** : ▪ Adequate rest ▪ Iron & folate therapy for at least 3 months ▪ Any infection treated promptly	➢ **General measure :** rest / light diet / increased fluid intake / alkalinization of urine / ➢ **Antibiotics :** ampicillin 500 mg/6H then specific after urine culture	○ Heparin **:** preferred initial line not crossing placenta not teratogenic – action stopped in hours / taken as daily repeated SC or IV injections / side effects only if taken more than 6 M **1- Oral anticoagulants :** prolong PT / croos placenta → limb & facial defects in 1sttrimester & intracerebral hemorrhage in 3rd trimester **2- Anticoagulants prophylaxis :** ▪ History of DVT in pregnancy or following it →last trimester ▪ History of DVT in non pregnant state → from 2nd trimester ▪ Cases of APS or history of pulmonary embolism → throughout pregnancy

ثلاثة أرباع الماسئ و الشقاء و سوء الفهم في العالم سوف تختفي إذا وضعنا أنفسنا مكان أعدائنا و تفهمنا وجهات نظرهم (غاندي)

Placental insufficiency

- **Definition** : failure of placental functions to deliver adequate oxygenation and nutrition
- **Types** : **acute** (placental separation with normal fetus) – **chronic** (associated with IUGR)
- **Etiology** : thrombosis or placental infarcts due to :
  - Hypertensive states - accidental hemorrhage
  - Postmaturity -diabetics
- **Pathology :** redistribution of blood to brain & heart → asymmetrical IUGR / oligohydramnios / decreased fetal movements
- **Diagnosis** :
  - **History** of the cause / poor weight gain / small abdominal girth
  - **Daily fetal movement count** (DFMC) : 2 days each week after 30 W / normal >10-12 move in 10-12 hr
  - **NST** : from 32 Week / detect FHR changes in response to ftal movements / done by CTG for 20 min / results : reactive (rise 15 bpm for at least 15 second at least twice in 15-20 min)
  - **BPPS** : done any time in 3rd trimester / study : fetal tone – fetal movements – fetal breathing movements – amniotic fluid movement – NST / 8 to 10 normal & < 8 sever hypoxia consider termination & < 6 sever academia must terminate
  - **Color Doppler** studies of fetal blood flow : measures resistance for fetal blood flow in umblical artery & middle cerebral / high in umblical →placental insufficiency / low in middle cerebral → brain sparing
  - **Oxytocin challenge test** : FHR changes in reponse to IV oxytocin induced contractions either +ve with decelerations / or –ve without changes (normal fetal wellbeing) rarely used
- **Management** :
  - Chronic : carefully monitored and delivered once it complete 37 w except if poor BPPS or dopplar studies need immediate termination
  - Acute : immediate termination irrespective of lung maturity

Intrapartum Assesment of fetus

- **AIM :** detect fetus at risk of hypoxia during labor
- **Causes :**
  - **Acute hypoxia :** cord accidents / placental separartion / placental compression
  - **Chronic hypoxia :** placental insufficiency / maternal hypoxia
- **Diagnosis :**
  - **Abnormal** FHR & passage of meconium after ROM
  - **Electronic** *FHR monitoring* : continuous monitoring during labor for both FHR and uterine contractions
    - *Normal* tracing : regular 120-140 BPM with beat to beat variability / early decelartions from reflex stimulation of vagus during head compression
    - Abnormal tracing : bradycardia < 100 / tachycardia > 160 / absence of beat to beat variabity / late decelerations (most dangerous sign) / variable decelerations in cord compression
  - **Fetal blood sampling** : taken with needle from fetal scalp after ROM ? normal 7.25 – 7.35
- **Management** :
  - Continuous monitoring for high risk cases
  - **in cases of abnormal CTG :** stop oxytocin / give O2 / put mather in left lateral position / IV fluids
  - **if successful :** continue vaginal with strict monitoring
  - **if failed :** immediate CS is done and in rare cases with favorable cervix and engaged presenting part allow for vaginal with use of forceps or extraction

IUGR

- **Definition :** fetus fail to reach full growth potential / < 10th percentile for its weight for age charts
- **Etiology :**
  - **Constitutionally small :** if women < 42 kg
  - **Symmetrical GR :** injury is very early in development and intrinsic to fetus
    - Poor maternal weight gain
    - Fetal infections as TORCH – listeria – TB / syphilis
    - Congenital anomalies serious cardiac and reanal malformations
    - Chromosomal abnoramlitis : triosomies
    - Skeletal anomalies : osteogensis imperfecta
  - **Asymmetrical GR :**
    - Vascular disease : HTN - DM
    - Chronic renal disease :
    - Chronic hypoxia : maternal cyanotic heart disease
    - Placental and cord abnormlities : focal placental abruption / velamentous insertion of cord
- **Diagnosis :**
  - Proper pregnancy dating : from LMP not US
  - Symphysial **fundal** height measurement : between 20-34 w if less than 2 cm from expected height →poor growth
  - **US** : ↓ BPD & altered AC/HC ratio / fetal weight < 10th percentile / oligohydramnios / aaccelarated placental ageing / abnormal Doppler flow indices
- **Management :**
  - **Near term IUGR** : prompt delivery
  - **Away from term :**
    - *Symmetrical* : exclude congenital & chromosomal anomalies and manage / screen infection and treat / evaluation of fetal wellbeing → if compromised termination is adviced
    - *Asymmetrical* : fetal surveillance if abnormal results →immediate termination

Macrosomia

- **Definition :** fetus with birth weight > 4-4.5 kg
- **Risk factors :** DOMP (DM – obesity – multiparity – postmaturity)
- **Diagnosis :** US diagnosis with 15-20 error range
- **Prevention :** control of DM / loose weight
- **Management :** better CS / induction for vaginal is for selected cases
- **Complications** : IUFD / birth traum a/ hypoglycemia / higher incidence for CS / traumatic injury fr birth canal

Pretem labor

- **Definition** : onset of frequent uterine contractions associated with progressive cervical effacement & dilataton before 37 W
- **Risk factors** : twins / history of preterm / poor nutrition / extremes of age / smoking
- **Etiology :**
  - PROM from PGL release
  - Chorioamnionitis
  - Systemic intrauterine infections
  - Placental abnormalits : PP & placental abruption
  - Uterine anomalies : septate & bicornate / leiomyoma
  - Fetal causes : multiple preg / major congenital anomlies / inborn errors of metabolism / fetal death
- **Complications :**
  - **Maternal** ; purepural sepsis / risk for recurrent preterm & midtrimestric abortion
  - **Fetal** : IVH / RDS / neonatal hypothermia / neonatal sepsis / anemia / bleeding tendency / malnutrition / hyperbilirubinemia / retrolental fibroplasia / alveolar rupture / neaonatal mortality
- **Diagnosis** :
  - To **predict** : frequent menstrual like cramps / low backache / vaginal discharge increased / partially effaced cervix /// TVS : shortened length of cervical canal / fetal fibronectin in vaginal fluid > 50ng/ml
  - **Sure** : true labor pains / effacement & dilatation of cervix
- **Management** :
  - **Allow preterm to proceed** :
    - IF : membranes ruptured and cervix >50% effaced >2cm dilated / adequate lung maturity / sever IUGR / fetal congenital anomalies incompatible / sever matreanl illness as PE
    - AND DO : continuous electronic monitoring / avoid prologation of 2nd stage / episiotomy / CS in preterm breech & extreme LBW / vitaminK1 to neonate and mother before labor
  - **Tocolytic therapy :**
    - IF : preterm before 34 week
    - Not IF : any of the previous indications for proceeding
    - Aim : transfer patient to center / enhancement of lung maturity
    - Drugs :
      - IV : beta adrenergic agonists as ritderine →tachycardia / hypotension / abnormal glucose & Mg sulfute
      - Oral : nifidipine as Ca channel blocker / indomethacin as PGL synthetase inhibitor / glyceryl trinitrate / ritoderine is controversial
  - **Corticosteroids :** in PTL < 34 W to accelerate lung maturity & minimize incidence of RDS & IVH / 2 IM injection sof betamethasone 12 mg each 24 hr apart
  - **Antibiotics** : as a prophylaxis from infection

Postterm

- **Definition** : pregnancy last 42 w or more from date of LMP
- **Etiology** : inaccurate or unknown LMP / irregular ovulation / altered estrogen progesterone ratio as anencephaly & placental sulfatase def
- **Diagnosis** : ensure accuracy of date / correlate it with her 1st +ve pregnancy test & her first US scan & date of quicking
- **Clinical feature** : wrinkled, patchy, peeling of skin , long nails + higher incidence of oligohyraminos and meconium passage
- **Effects** ;
  - Fetal **distress** & oligohdramnios : to < 0.5 L at 42 w with loss of cord protection →cord compression
  - **Meconium** passage : with distress with ridk of aspiration
  - **Increased morbidity** & mortality of fetus : from meconium aspiration – IUGR – oligo – fetal distress & macrosomia – with its complications
- **Management** :
  - From 40 to 42 w : asses fetal wellbeing if good wait till 42 / if bad terminate
  - After 42 W : induction of labor if good fetus with favorable conditions other wise CS

PROM

- **Definition** : rupture of membranes at any time before onset of labor
- **Etiology** : infection cervical or vaginal especially GBS / cervical incompetence / polyhydramnios & multifetal preg
- **Diagnosis** :
  - **History :** sudden gush of fluid from vagina
  - **Speculum :** pooling of amniotic fluid in post fornix
  - **Nitrazine test :** detect alkaline PH of amniotic fluid in vagina which is 7
  - **US :** decreased amount of fluid on re[eated US
  - **Fetal fibronectin & alpha fetoprotein .**
- **Complications** :
  - **Maternal :** chorioamnionitis / postpartum endometritis / placental abruption in cases of polyhydramnios
  - **Fetal :** fetal & neonatal infection / RDS from prematurity / perinatal asphyxia & fetal distress from cord compression & prolapse / pulmonary hypoplasia / brain damage & ICH / compression deformities
- **Management** :
  - **PROM > 37 W :**
    - wait for spontaneous labor pains which develop in 24-48 Hr under cover of Antibitics & close fetal monitoring
  - terminate if fetal condition is not reassuring or signs of infection appeared either by induction by oxytocin or CS
  - **PROM < 37 W :**
    - expectant management until labor pains develop or lung maturity achieved with (daily fetal monitoring – prophylactic antibiotics – IM corticosteroids)
    - immediate delivery is indicated if spontaneous labor pains – fetal lung maturity documented by L/S ratio – drained liqor – fetal condition is not reassuring – evidence of infection

Amniotic fluid

formed from fetal urine & transduation of maternal & fetal circulation / 0.8-1.5 L at term / clear aspect –pale –alkaline / 99 % water + fetal excretions + carbohydrates ,lipids, proetins + hormones & enzymes / functions (protection – medium for movement – muscular development – fetal excretions – nutrition – prevent cord compression in labor – help dilatation – sterilization of birth canal)

الإصرار علي القيام بالشئ يجعله أسهل , ليس لأن طبيعة الشئ نفسه قد اختلفت لكن لأن قدرتنا علي القيام به قد زادت (اميرسون)

Oligohydramnios

- **Definition** : AFV below 5th percentile for gestational age or less than 500ml or AFI < 5 & largest fluid pocket < 2 by US
- **Incidence** : 3-4 % of pregnancies
- **Etiology** : placental insuffiency / undiagnosed PROM / fetal renal congenital anomalies / indomethacin reduces urine output
- **Diagnosis** :leaking of amniotic fluids / does not feel progressive abdominal enlargement / small abdominal girth / US (AFI < 5 – detection of cause – evaluation of fetal wellbeing)
- **Complications** : umblical cord compression / pulmonary hypoplasia / contracture limb deformities / amniotic band formation
- **Management** :
  - **Pregnancy termination** if placental insufficiency or lethal fetal congenital anomlies
  - **Amnio-infusion** ; repeated injection of 250-300 ml warmed saline into uterus via amniocentesis & may done during labor to prevent cord compression

Polyhydrramnios

- **Definition** : AFV above 95th percentile for gestational age or more than 2000 ml or AFI > 25 & largest fluid pocket > 8cm by US
- **Incidence** : 0.4-1.5 %
- **Etiology** :
  - **Idiopathic** : imbalance between production and absorption
  - **Fetal causes** : twins / fetal anomalies 9 anencephaly – esophageal atresia –obstruction of venous circulation) / placental chrioangioma / large placenta
  - **Maternal causes** : DM / sever generalized edema / PE
- **Diagnosis :**
  - **Maternal** : respiratory discomfort / abdominal discomfort / LL edema
  - **Abdominal** : over distention & excessive striae / fundal level higher than expected / fetal parts not felt / malpresentatons / fluid thrill & marked external ballotment
  - **US :** AFI >25 or long pocket > 8 cm + fetal wellbeing & cause detection
- **Types** :
  - **Acute hydramnios** : in uniovular twins & fetal anomalies / very rare / before 20 W / rapid accumillation of fluid / ends in abortion / marked pressure symptoms
  - **Chronic** : more common / after 20 W / gradual acccumilation / end in preterm / less pressure symptoms
- **Complications :**
  - *Effect on pregnancy* ; abortion or PTL/respiratory discomfort
  - *Effect on labor* : inertia & malpresentations → PPH / PROM →cord presntations and prolapse & accidental hemorrhage
  - *Effect on fetus* : congenital anomalies are associated / prematuirity / asphyxia from cord prolapse
- **management** :
  - **mild to moderate** : reassurance & establish underlying cause & spontaneous labor will occur earlier
  - **sever :**
    - *termination* if > 37 w to relieve maternal pressure symptoms by induction or CS
    - *conservative* if < 37 w : (amniocentesis in a slow rate & indomethacin decreasing fetal urine) / close observation after delivery

Abnormal uterine action

- **Classification** :
  - **Uterine overactivity** : precipitate labor / obstructed labor
  - **Uterine under**activity : hypotonic inertia / hypertonic inertia
  - **Cervical dystocia** .

Precipitate labor

- **Definition** : labor duration less than 4 hours due to strong coordinate uterine contractions in abscene of obstruction with small sized fetus
- **Diagnosis** : retrospective diagnosis done in 2nd or 3rd stage / in 1st stage : shows rapid cervicsl effacement & dilatation
- **Complications :**
  - **Maternal :** lacerations → PPH & sepsis / Atony → PPH & retained parts of placenta & inversion of uterus /shock from hemorrhage
  - **Fetal :ICH** / fetal injuries / cord avulsion / neonatal sepsis
- **Management :**
  - **Patient with history** of precipitate →admitted to hospital with first perception of labor pains
  - **If seen during delivery** →geeneral anaesthesia
  - **If seen after** : explore bith canal for lacerations to repair & fetus examined foe injuries / give antibiotics

Hypotonic inertia

- **Definition** : weak infrequent ineffective uterine contractions
- **Etiology** :
  - **General :** Anemia & analgesics (improper use) / primigravida / chronic illness / nervous & hypertensive
  - **Local : uterine** Anomalies / OverDistention / full bladder / fibroids / malpresentations
- **Classification** : 1ry from start / secondary due to exhaustion from prolonged labor
- **Clinical picture :**
  - Labor is prolonged
  - Contractions are weak infrequent (less than 3 in10 min) and of short duration (less than 30 seconds)
  - **Mother & fetus** not seriously affected
- **Complications** :
  - **Maternal :**
    - 1st stage : exhaustion & starvation ketoacidosis
    - 2nd stage : CS & abuse of uterine atimulants
    - 3rd stage : retained placenta & PPH
    - Puerperium ; subinvolution of uterus
  - **Fetal :** not affected apart from prolonged ROM
- **Manaegement** :
  - **General measures** : proper diagnosis that patient is in acrive labor / exclude CPD / proper mange of 1st stage
  - **Uterine stimulants :**
    - Aim **:** increase stranght & frequency & duration of cont
    - Precations **:** close observation of mother & fetus by continuous monitoring / continuous qutomatic computer perfusion pump
    - Contraindications : (CPD & malpresentations & multiple pregnancy) →lead to obstruction // (uterine scar & grand multipara) → rupture // (fetal distress & in coordinate uterine action) →aggravate them
    - Technique **:** IV infusion of 5 units in 500 ml of lactated ringer / continue drip for at least one hour after delivery to guard against retained placenta and atonic PPH
  - **Artificial ROM :** in cases of over distention
  - **Operative delivery :** if prolonged > 24 hr or fetal distress detected by vaginal forceps or CS according to conditions

Hypertonic inertia

- **Definition :** uterus is hyperactive with increase in basal tone without dilatation and effacement in cervix
- **Etiology** : incoordinate uterine action or hyperactive lower segment or contraction ring . the cause for these pathologies is not known but could be due to : anexity / repeated rough manipulations / maluse of oxytocin / malpresentations
- **Clinical picture :**
  - **Labor is prolonged**
  - Contractions are irregular and uterus inbetween is not lax with increase in basal tone
  - Contractions are painful with marked low backache
  - Slow cervical dilatation & effacement
  - Membranes rupture early
- **Treatment :**
  - **General ;** exclude CPD & accidental hge / proper amange for 1st stage
  - **Medical :** analgesics (pethidine or epidural anaesthesia) antispasmodics (hyocine) usually rtain normal action
  - **CS :** if failed medical / fetal distress / disproportion

Contraction ring

- **Definition** : perdidtent localized annular spasm oof uterine muscles in any stage of labor at junction of upper & lower segmenet
- **Etiology** : unknown :
  - **Malpresentaions**
  - Oxytocin in hyper tonic inertia
  - Intrauterine manipulation without anaesthesia
- **Diagnosis** :
  - Preceeded by colicky uterus in primigravida
  - Prolonged 2nd stage without obvious cause
  - PV: felt by a hand introduced inside uterus
- **Complications** : prolonged 2nd stage / retained placenta from hour glass contraction / PPH
- DD : from pathological retraction ring

Contraction ring	Pathological retraction ring
✓ Occur at any stage ✓ any level ✓ no change in its position	✓ prolonged 2nd stage ✓ between upper & lower ✓ rises up
✓ felt only vaginally ✓ uterus is not tonically contracted ✓ fetal parts can be felt ✓ they are not distressed	✓ felt and seen abdominally ✓ uterus tonically contracted ✓ cannot be felt ✓ distressed
Relax by antispasmodics & analgesics	Only if fetus born

- **Treatment** : analgesics & antispasmodics / 2nd stage : deep general anaesthesia and deliver by forceps or CS (if forceps failed or ring below presenting part) / 3rd stage : deep general anaesthesia then deliver placenta manually in hour glass contraction

Cervical dystocia

- **Definition** : failure of cervical dilatation in spite of regular strong uterine contractions
- **Types** :
  - **Organic** : stenosis of cervix by fibrosis / cervical fibroid or carcinoma
  - **Functional** : non dilatation in absence of any organic lesion (well effaced but not dilated)
    clinical : external os as hard rim
- **Complications** : prolonged labor / obstructed labor / annular detachment of cervix
- Treatment : stenosis & organic cause→ CS / functional (give time – give analgesics & antispasmodics – if fetal distress occur →CS)

Contracted pelvis

- **Definition** : one or more of pelvic diameters reduced t othe extent that interfere with normal mechanism of labor
- **Etiology** :
  - **Causes in pelvic bones** (PB) : abnormal shape / rickets & osteomalacia / tumors of PB / fractures of PB / TB of PB
  - **Causes in spines** : lumbar kyphosis or scoliosis and spondylolisthesis
  - **Causes in LL** : dislocation or atrophy / unilateral fracture or polio
- **Diagnosis** :
  - **History** : bad obstetrics history (prolonged labor end in CS / difficult forceps) – history of pelvic trauma or disease
  - **General examination** : height < 150 cm/ gait / stigmata for rickets / dystrophia dystocia $ (obese short female with male hair distribution) / spine exam / LL exam
  - **Abdominal examination** : malpresentations & non engagment
  - **Pelvimetry** :
    - External pelvimetry :
      - External pelvimetry of inlet : measure daimetrs of false pelvis
      - External pelvimatry of oulet : measurement of subpubic angle / 4 knucle test for bituberous D / thom's pelvimeter for ant & post sagittal D
    - Internal pelvimetry :
      - Diagonal diameter 12.5 cm from lower border of SP to promontory
      - Palpation of sacrum has smooth concavity
      - Palpation oif sidewalls of pelvis : not converging
      - Estimation of width of scroaciatic notch : 2 fingers
      - Palpation of ischial spines : not jutting
      - Palpation of subpubic angle : 2 fingers
    - Radiological pelvimetry : lateral view x-ray an d CT for pelvic diameters estimation
  - **US assessment of diameters** of fetal head : BPD /OFD /HC
  - **CPD tests** : the head is the best pelvimetry for pelvis
    - Pinard's method **:** rt hand over SP and left hand grasp head and try to push it down to determine degree
    - Muller-kerr method **:**index & middle fingers in vagina for internal pelvimetry / thumb on SP / rt ahnd push fetal head into pelvis

However good or bad a situation is, it will change.

- **Risks in contracted pelvis labor :**
  - **Maternal :** before labor (prolonged labor – PROM – cord prolapse – obstruceted labor) instrumental & operative delivery – after (PPH – pureperual sepsis – necrotic fistula)
  - **Fetal :** fetal birth injury / asphyxia / prolapse of cord / intra-amniotic infection
- **Management :**
  - **Trial of labor :**
    - For **:** young healthy primigravida with cephalic presentation & moderate degree of contraction not post trem nor of bad obstetric history
    - Take care : in hospital / proper management of 1st stage / adequate analgesia
    - END by **:** engagement of fetal head / fetal distress / failure of progression after 2 hours
  - **CS : IF** marked disproportion / maeked contracted outlet / moderate but with failed TOL / elderly primigravida / any other indication for CS

Obstructed labor

- **Definition** : failure of delivery of fetus due to mechanical obstruction
- **Etiology** :
  - **Mternal** : contracted pelvis / soft tissue obstruction / cervical dystocia
  - **Fetal** : Macrosomia / malpresentations (Perssitent OP – persistent MP – impacted breech – shoulder presentation) / sholulder dystocia / locked twin
- **Clinical picture :**
  - **History** : prolonged ROM – prolonged labor
  - **General examination** : patient exhausted with signs of dehydration
  - **Abdominal examination** :
    - Uterus : hard & tender / contractions rapid & strong
    - Pathological retraction ring (bandl's ring)
    - Fetal parts difficult to be felt
    - FHS are inaudible
  - **Vaginal examination** :
    - Vulva : edematous and vagina dry
    - Cervix edematous not well applied on presenting part
    - Presenting part not engaged with pelvic caput develop in head
    - Cause of obstruction could be determined
- **Complications** :
  - **Prolonged PROM** & puerperal pyrexia & intra-amniotic infection
  - **Rupture uterus** & injuries of birth canal & necrotic vesicovaginal fistula
  - **Maternal distress** & fetal distress & high perinatal mortality
- **Management** :
  - **IMMediate CS** is the safest option but with disimpactionof fetal head vaginally – adequate uterine incision – gentle extraction of fetus
  - **Explore** birth canal under anaedthesia for injuries
  - **Forceps** delivery shouldnot be attempted

Rupture uterus

- **Etiology :**
  - **Rupture during pregnancy :** scar of previous CS or sftr gynecological operation / traumatic rupture in car accident
  - **Rupture during labor :**
    - Spontaneous : uterine scar / obstrucetes labor / improper use of oxytocin / use of PGL in augmentation of labor
    - Traumatic : (forceps usage or brech extraction) before full dilataion / IPV / excessive fundal pressure in 2nd stage / difficult manual removal of placenta
- **Pathology :**
  - **Complete rupture** : entire thickness of wall including peritoneum
  - **Incomplete rupture** : not involve visceral peritoneum
- **Clinical picture :**
  - **Spontaneous :**
    - Symptoms **:** sever abdominal pain followed by cessation of contractions / sever vaginal bleeding
    - General **:** hypovolemic shock
    - Abdominal **:** fetal parts not easily felt / fetus take abnormal attidue / marked fetal distress / abdominal tenderness & rigidity
    - Vaginal **:** recessation and loss of station / excessive vaginal bleeding / site of rupture may be felt
  - **Traumatic :** difficult delivery followed by excessive vaginal bleeding & hypovolemic shock & placenta is retained
- **Prevention :** proper management of obstructed labor / proper use of uterine stimulants / proper evaluation of patient with previuos uterine scar
- **Treatment :**
  - **Shock** manage & immediate laparotomy
  - **Surgical repair** : limited tear / fair general condition / young patient
  - **Abdominal hysterectomy** : when extenxive rupture or life threating bleeding or no need for further fertility

Retained

- **Definition :** placenta failed to be expelled after 30 min after fetal delivery
- **Incidence** : 0.5 %
- **Etiology** :
  - **Retention of separated placenta** : atony of uterus / contraction ring / complete rupture of uterus and expulsion to peritoneal cavity
  - **Retention of non separated** placenta : atony of uterus / defective placentation : decidua basalis is absent or defective (accrete – increta – percreta)
- **Clinical picture** : vaginal bleeding / lax abdominal wall / sever shock (idiopathic obstetric shock) / vaginal exam (hour glass contraction / absence plane of cleavage / rupture uterus)
- **Complications** : shock / PPH ? puerperal spsis / subinvolution of uterus / placental polyp
- **Management** :
  - **Cases of uterine atony :**
    - Gentle abdominal massage
    - IM ergomeetrine
    - Brandt Andrew maneuver (manual removal of placenta
  - **Cases of contraction ring** : deep general anaesthesia
  - **Cases of adherent placenta :** simple adhesion : manual separation and removal of placenta / placenta complete accrete : abdominal hysterectomy or morecellation or in young primi left inside with antibiotics and observation
  - **In case of rupture uterus :** shock manage then placental removal then either repair or hysterectomy

Acute uterine inversion

- **Definition** : the uterus is turned inside out after delivery
- **Etiology** :
  - **Induced** : vigorous pressure on fundus / traction on cord / manual removal of placenta
  - **Spontaneous** : precipitate labor / very short cord / SMF polyp / vigorous straining
- **Degress** : 1st (fundus depressed) / 2nd (protrude through cervix) / 3rd (protrude outside vulva)
- **Clinical picture** :
  - **Symptoms :** pain in lower abdomen / vaginal bleeding / shock / mass protrude from vagina
  - **Signs :**
    - **General** : profound shock from blood loss & peritoneal traction
    - **Abdominal :** cupping of fundus in 2nd & 1st / absent uterus in 3rd
    - **Vaginal :** soft purple mass in vagina or proteude from vulva
- **Treatment** :
  - **Shock management**
    - **Under general anaesthesia** the inverted uterus is repositioned manually with use of tocolytic drugs
    - **If placenta still attached** removed
    - **After ending tocolytic** agent stopped & oxytocin is infused to maintain position

hypofibrinogenemia

- **Definition** : condition of accelerated fibrin formation and lysis resulting in consumption of platelets & coagulation factors
- **Etiology** : massive blood loss with inadequate replacement / placental abruption / sever PE or HELLP $ /// sepsis – IUFD – acute fatty liver of pregnancy – adult RDS – AFE
- **Clinical picture** : hemorrhage / persistent bleeding from venipuncture / spontaneous bleeding / purpuric areas
- **Investigations** : FDPs & fibrin D dimer / prolonged PT & PTT / low fibrinogen & platelet count / weinwer test clot form after long period and dissolve in 1 hour
- **Treatment** :
  - **Two wide bore IV** cannula are inserted
  - **If PT > 1.5 times** control value →fresh frozen plasma
  - If fibrinogen level < 100 mg/dl →ten units of cryoprecipitate or fibrinogen 4-10 g IV
  - If **platelet count < 20000** or significant bleeding with < 50000 → platelet transfusion
  - **Antifibrinolytics is** not recommended in most types of obstetric coagulopathy (amino caprioc acid)
  - **Heparin infusion** to stop coagulation

Puerperal

- **Definition** : wound infection of genital tract that occur during labor or during the first 3 weeks after
- **Etiology** :
  - **Predisposing factors** : lack of antiseptic measures / PROM / excessive vaginal examination / retained parts of placenta / intrauterine manipulations
  - **Sources** of **infection** : exogenous (droplet infection) endogenous (in genital tract) autogenous (reach genital tract from remote sites)
  - **Causative organisms** : anaerobic streptococci is the most common then GA hemolytic streptococci
- **Pathology** :
  - **Uterus** : acute putrid endometritis (mmild / low virulent organisms / good patient ressitance / necrotic infected discharge / leucocytic barrier is found) acute septic endometritis (the reverse)
  - **Infected lacerations** : perineum / vagina / cervix
  - **Parametritis** : unilateral formin g a masss of exudation that push uterus t othe opposite side and point at inguinal ligament healed by fibrosis pulling the uterus
  - **Salpingo-oophoritis** : by lymphatic or vascular spread
  - **Pelvic thrombophlebitis** : secondary to parametritis or uterine wall veins thrombophlebitis
  - **Peritonitis** : either localized pelvic peritonitis or generalized
  - **Generalized spread** : septicemia & septic shock
- **Clinical picture** :
  - Infected lacerations : local pain hotness redness with pyrexi
  - **Intrauterine** infection : fever & tachy & deep seated apin – infected discharge
  - **Parametritis** : fever – tachy – deep seated pain / unilateral tender mass in one fornix
  - **Salpingo-oophoritis** : deep seated bilateral lower abdominal pain & tenderness / tenderness on moving cervix
  - **Pelvic thrombophlebitis** : fever – tachy inporportinate / lower limb become edematous not tender if spread to femoral vein / both LL affected if spread to IVC
  - **Peritonitis** : pelvic abscess (lower abdominal pain – fever & tachy – tenesmus – mass in cul de sac) generalized peritonitis (sever toxemia – continuous vomiting – dehydration)
  - **Septicemia** : high shoootin fever with tachy inconsistent & rigors + generilzecd peritonitis →septic shock
- **Investigations** : culture & sensitivity of discharge / urine culture / CBC / blood culture / Doppler US for venous thrombosis / chest X-ray for chest infection
- **Prevention** : pregnancy (treat genital tract infection / anemia & DM / seotic focus) labor (aseptic measures – minimize PV – antibiotics for prolonged labor – lacerations mange) puerperium (aseptic – flowe r position – isolation of suspected)
- **Treatment** :
  - **General** : isolation – flower's light diet – analgesics
  - **Antibiotics** : cephalosporins + gentamycin + metronidazole
  - **Promotion of drainage** : fowler's position + ergometrine + removal of retained parts of placenta + drainsge of pelvic abscess – removal of suture of wounds
  - **Treat complications** : septic thrombophelibitis (anticoagulants then antibiotics – limb immobaliztion) / peritonitis (no oral feed / IV fluids / GIT drainage / IV antibiotics)

الدين لا يمحو الغرائز ولكن يروّضها، والتربية لا تغيّر الطباع ولكن تهذّبها (مصطفي السباعي)